CITY OF HAYWARD
AGENDA REPORT

AGENDA DATE 01/16/01
AGENDA ITEM _____
WORK SESSION ITEM WS #3

TO: Mayor and City Council

FROM: Director of Public Works

SUBJECT: Review of Speed Hump Policy

RECOMMENDATION:

It is recommended that the City Council review and comment on this report.

BACKGROUND:

On December 12, 1995, the City Council adopted a speed hump policy consisting of a set of guidelines, warrants, a petition requirement, and specifications (see Exhibit A). The guidelines adopted included the following language: "The Director of Public Works may recommend installation of speed humps along a given street segment if it is determined that installation of speed humps will further the objectives of this program. If this occurs, it would not be necessary for all the guidelines and warrants to be met, although a petition would still be required." To implement these guidelines, staff prepared the criteria noted below.

The physical criteria of the guidelines and warrants include street width, grade, radius, visibility, block length, and observed speed. The policy criteria require a two-thirds approval, via petition, from the residents on the requesting block, as well as concurrence from owners of properties adjacent to the humps. Further, the policy criteria exclude truck, transit, and emergency routes; cul-de-sacs, streets posted above 25 mph, high volume or multi-lane thoroughfares, and streets that do not have curb and gutter.

Staff further established criteria for street segment length, width, grade, radius, and observed speeds that are more flexible than the adopted physical criteria (see Exhibit B). Staff has applied these flexible criteria, generally without waiving more than one adopted criterion at a time, although there were a few exceptions. The flexible criteria have been used to approve 16 of the 23 locations for which speed humps have been installed.

Since the inception of this program, 54 speed humps have been installed on 23 streets throughout the city. This includes the current contract to install 23 humps on nine streets and two raised intersections at a total cost of $62,650. To date, the program seems to be well received.

At the November 21, 2000, work session, Council members asked staff to revisit the criteria for minimum block length and radius requirements. In response to this request, staff surveyed ten jurisdictions about their specific speed hump criteria and policies (see Table 1). Of particular note are the minimum block lengths and the distances between installed speed humps.

TABLE 1
SPEED HUMP SURVEY
DECEMBER 2000
(Minimum Criteria)

Jurisdiction	Block length (ft)	Humps per street segment	Distance to the nearest cross street (ft)	Distance between humps	Curve radius (ft)
Hayward	**750**	**2**	**250**	**275**	**300**
Hayward **Flexible**	650	---	---	---	275
Fremont	750	1	300	400	300
Oakland	300	1	125	250	300
Sacramento	500	2	100	300	250
Campbell	1000	2	300	300	300
Mountain View	700	2	150	150	300
San Leandro	750	2	200	200	300
Concord	750	2	No standard	No standard	300
Danville	550	2	150	150	300
Richmond	300	1	150	150	300
Alameda County	750	1	150	150	300

The number of humps installed per block has a direct relationship to the minimum block length criterion. Most of the jurisdictions surveyed require at least two humps per block, since research shows that the humps are more effective when installed in this manner.

The distance to the nearest cross street is another factor in determining minimum block length. Current Hayward policy calls for a minimum distance to the nearest cross street of 250 feet, and no flexible criterion has been established for this factor. Minimum distances for the agencies surveyed range from 100 feet to 300 feet. In analyzing what other agencies have done, staff concluded that the minimum cross street distance could safely be reduced from 250 feet to 150 feet when other criteria, such as sufficient 200-foot clear sight distance, have been met.

A final factor in determining minimum block length is spacing between humps. In general, the city's spacing is 275 feet, which is calculated based on the posted speed limit of 25 miles per hour. This minimum may be modified based upon field conditions and street geometry. No change is recommended in the procedures for determining minimum spacing between humps.

If the required distance to the nearest cross street is reduced to 150 feet, and the 275-foot spacing and the two humps per block factors are retained, the minimum block length may be reduced to 575 feet. According to the survey, 575 feet would be consistent with the minimum block length for which two humps are installed.

None of the agencies surveyed allows humps on severe curves of less than 300 feet radius, with the exceptions of Sacramento, which allows a minimum 250-foot radius, and Hayward, which has a flexible criterion of 275 feet. No further change is recommended in this standard for Hayward.

Assuming consensus, staff will modify the flexible criterion for minimum block length from a 650- foot to a 575-foot minimum. Consequently, additional streets will be expected to qualify for speed humps. For example, a review of historical requests for speed humps indicates that ten additional locations could qualify upon submittal of appropriate petitions. Further, it is anticipated that these relaxed standards would allow eight or so additional locations annually to qualify for this growing program. Staff will evaluate, as appropriate, the need for more funding allocated to the annual speed hump program during preparation of this year's Capital Improvement Program.

Prepared by:

Robert A. Bauman, Deputy Director of Public Works

Recommended by:

Dennis L. Butler, Director of Public Works

Approved by:

Jesús Armas, City Manager

Attachments: Exhibit A: Guidelines for Installation of Speed Humps
Exhibit B: Established Speed Hump Criteria

CITY OF HAYWARD

DEPARTMENT OF PUBLIC WORKS
ENGINEERING AND TRANSPORTATION DIVISION

GUIDELINES FOR INSTALLATION OF SPEED HUMPS

The installation of speed humps on streets within the jurisdiction of the City of Hayward will be considered only if found warranted by the Department of Public Works, Transportation/Development Section, or is specifically recommended by the Director of Public Works. The following criteria shall be considered to determine whether speed humps would enhance safety along a given street segment:

Street Geometry and Physical Characteristics:

1. The street must be either a residential street or local street defined as follows:

   a. A residential street, or "residence district," is a street having 13 or more buildings fronting on one side of the street or 16 or more buildings fronting on both sides of the street, within a distance of 1/4 mile. Buildings must be located within 75 feet of the street curb face or edge of pavement and they must face and gain access from the street, or be considered as "fronting" onto the street.

   b. A local street is a street intended primarily to provide direct access to abutting residential buildings.

   c. Buildings, as referred to in the above context, include separate dwelling houses, churches, apartment buildings, or multiple dwelling houses.

2. The posted or prima facie speed limit on the street shall not exceed 25 miles per hour.

3. By means of a speed survey, it is found that 15% of the traffic travels at 32 mph or greater.

4. The street must be a through street (no cul-de-sacs or alleys), have a paved width of 40 feet or less and be bounded by standard curb and gutter.

5. The street must contain no more than one lane of traffic in each direction.

6. The average daily traffic volume for both directions must range from 500 to 4000 vehicles per day on an average weekday.

7. The street cannot be in an industrial area, along established truck routes, public transit routes, or established/preferred emergency vehicle routes. Both the Hayward Fire Department and Hayward Police Department must concur.

8. The street grade is less than 5% and the centerline radius is greater than 300 feet.

9. The street must be a through street (no cul-de-sacs) with a minimum length of 750 feet which is uninterrupted by other intersections.

Speed Hump Placement:

1. Generally, spacing between humps shall be determined by the following formula:

   $H_s = 0.50\ [2.00\ (V_{85})^2 - 700]$
   H_s = Optimal spacing (in feet) between humps

Exhibit A

Speed Hump Placement (continued):

V_{85} = Desired 85th percentile speed between humps (in miles per hour)
Example: For V_{85} = 25 mph, H_s = 275 feet

However, spacing may be increased or reduced, if determined necessary by the Transportation/Development Manager, based on field conditions and geometrics.

2. Humps should be placed at least 250 feet away from nearest intersection, stop sign, or traffic signal.

3. Speed humps should not be installed at locations that will result in displacement of traffic to parallel streets.

4. Speed humps shall not be placed over manholes, drainage structures, water meters, or other utility access points, and shall only be placed at locations that do not create adverse impact on drainage patterns.

5. If possible, speed humps should be placed near existing street lighting.

6. Speed humps shall be installed no closer than 10 feet to the nearest driveway and 25 feet to the nearest fire hydrant.

7. A series of two or more speed humps are usually more effective than single hump installations. Any one series of humps should generally not be greater than one-half mile in length and the end of one series should not be immediately adjacent to another series.

8. Spacing should allow at least two speed humps on each block.

9. Speed humps shall be located so that they are clearly visible for at least 200 feet from each approach.

10. Speed humps should be positioned on property lines. Placement in front of residences should be avoided, especially those with a direct window view to the street.

11. Proposed installations near schools which may impact school bus routes or young bicyclists and pedestrians should be submitted to the Hayward Unified School District for review and comment.

Design:

1. Speed humps shall extend 12 feet in the direction of travel, reaching a maximum height of 3 inches at midpoint along a roughly circular path.

2. Speed humps shall be placed perpendicular to the direction of travel, extending to each gutter lip.

3. Each speed hump shall begin to taper 12 inches from, and finish flush to the gutter lip.

Petition:

1. A petition supplied by the Transportation/Development Section shall be submitted containing the signatures of 2/3 of the property owners along a street or street segment, and each of the property owners immediately adjacent to each proposed hump location. Only one signature per address will be accepted. A street segment is a portion of a street between boundaries defined by the requesting petitioners.

2. A separate petition must be received for each street or street segment.

3. Petitions shall be submitted to the Transportation/Development Section for consideration.

Signing and Striping:

1. Modified (W37) "Bumps Ahead" (30" x 30") warning signs shall be placed approximately 250 feet in advance of the first hump from each approach.

2. (W37) "Bump" (30" x 30") warning signs with (W6) "15 mph" advisory speed plates shall be placed within 50 feet of each hump.

3. White "Bump" pavement markings 8 feet in height shall be installed adjacent to each "Bump" warning sign.

3. Each hump shall be marked with 6" wide, white "zig-zag" type markings as shown in the specifications. Raised pavement markers shall be placed on the centerline, positioned on the crest and in front of the hump from both approaches.

Speed Hump Removal:

1. Speed humps shall not be considered for removal within the first two years of installation.

2. In order to be considered for removal, a petition containing the signatures of 2/3 of the property owners along the street must be submitted to the Transportation/Development Section. Only one signature per address will be accepted.

3. The cost of removal of speed humps shall be borne by those parties signing the petition for removal. Actual removal of existing humps will not take place until an amount equal to the estimated cost for removal is received by the City from those signing the petition.

Priority List:

1. Each request for speed humps will be analyzed as staff time permits after receipt of a completed petition and placed on a priority list. Full funding from a non-city source (i.e., petitioners, developer) precludes the location's inclusion on the priority list and may expedite installation. Ranking on the priority list will be based on scores calculated as follows:

   a. 1 point for each percentage point of vehicles exceeding the speed limit.
   b. 1 point for every 100 vehicles over 1,000 Average Daily Traffic volume
   c. 5 points for locations within one block of schools or parks.
   d. 1 point for each percentage point of households approving speed humps.
   e. 5 points for each speed related accident on the street (not involving DUI).

2. The priority list shall be reviewed every two years. The number of speed humps installed in any given year will depend upon available funding. The Public Works Director may, if circumstances warrant, recommend installation in other than priority list order.

Established Speed Hump Criteria

Criteria	Adopted Standard	Flexible
One Lane Each Direction	1	N/A
Segment Length	Greater than or equal to 750′	Greater than or equal to 650′
Width	Less than or equal to 40′	Less than or equal to 48′
Grade	Less than or equal to 5%	less than or equal to 6%
Centerline Radius	Greater than or equal to 300′	Greater than or equal to 275′
Speed Limit	25 mph	N/A
85th Percentile Speed	Greater than or equal to 32 mph	Greater than or equal to 29 mph
Not a Truck or Transit Route		N/A

Exhibit B